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EXAMINER

WASHBURN, DOUGLAS N

ART UNIT PAPER NUMBER

2863

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,569

Applicant(s)

DITTBERNER, ANDREW B.

Examiner

Douglas N. Washburn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 12 and 14 is/are rejected.
- 7) ☒ Claim(s) 6-8, 10, 11, 13 and 15-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 26 April 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1 The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities:

The specification page 1, ¶ 1 cites priority to a provisional application 60/419676 whereas the oath/declaration cites priority to a provisional application 50/419,676.

Correction is required.

Claim Objections

2 Claims 8, 12 are objected to because of the following informalities:
Claim 8, line 3 "the ear canal" lacks antecedence;
And claim 12, line 3 and lines 11 and 12 "the hearing aid under test" lacks antecedence.

Correction is required.

Claims 6, 7, 10, 11, 13, 15-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

3 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 2, 9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Chung, D; Doh, W; Youn, D, Choi, J; Woo, H; Kim, D; Kim, W; "Hearing Impairment Simulation For The Performance Evaluation Of Hearing Aid System"; 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society; Volume 1; 31 Oct – 3 Nov 1996; pp 415-416 (Hereafter referred to as Chung).

Chung teaches:

A source of prerecorded speech sounds in regard to claim 1
(e.g.; ¶ 3, lines 33-37);

Hearing aid analysis circuitry to receive a plurality of signals representing signals generated by speech sounds routed through different acoustic paths and filter circuitry to selectively simulate a hearing loss in regard to claim 1

(e.g.; ¶ 2, lines 9-34; figure 1);

A hearing aid under test operably interfaced with a source of prerecorded speech sounds and hearing aid analysis circuitry in regard to claim 1

(e.g.; ¶ 3, lines 1-27);

A computer system operably connected to hearing aid analysis circuitry and a source of prerecorded speech sounds in regard to claim 1

(e.g.; ¶ 3, lines 33-37);

A control program that operates to present prerecorded speech sounds to hearing aid analysis circuitry to produce a first degraded signal routed through the filter circuitry and a second processed signal routed through

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the hearing aid and the filter circuitry in regard to claim 1

(e.g.; ¶ 3, lines 6-27);

A speech recognition program that compares speech recognition from a first degraded signal and speech recognition from a second processed signal to determine an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 1

(e.g.; ¶ 3, lines 6-27);

A control program operates to present prerecorded speech sounds to produce a control unprocessed signal that is not routed through filter circuitry or a hearing aid, the control unprocessed signal being used by a speech recognition program as a control for optimal speech recognition for the prerecorded speech sounds such that an objective indication of speech perception enhancement is expressed in relation to the control in regard to claim 2

(e.g.; ¶ 3, lines 39-48; table 1);

Filter circuitry selectively simulates a hearing loss based on the latest physiology and psychoacoustic theory in order to simulate the hearing loss suffered by a given patient in regard to claim 9

(e.g.; ¶ 2);

Interfacing a hearing aid under test with a source of prerecorded speech sounds and with hearing aid analysis circuitry including filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Presenting prerecorded speech sounds to hearing aid analysis circuitry in regard to claim 12

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(e.g.; ¶ 3, lines 6-27);

Producing a first degraded signal routed through filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Producing a second processed signal routed through a hearing aid and filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Comparing speech recognition from a first degraded signal and speech recognition from a second processed signal using a speech recognition program in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

And determining an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 12

(e.g.; ¶ 3, lines 6-27).

.Claim Rejections - 35 USC § 103

4 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chung in view of Lindemann et al. (US 6,118,877) (Hereafter referred to as Lindemann).

Chung teaches:

A source of prerecorded speech sounds in regard to claim 1

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(e.g.; ¶ 3, lines 33-37);

Hearing aid analysis circuitry to receive a plurality of signals representing signals generated by speech sounds routed through different acoustic paths and filter circuitry to selectively simulate a hearing loss in regard to claim 1

(e.g.; ¶ 2, lines 9-34; figure 1);

A hearing aid under test operably interfaced with a source of prerecorded speech sounds and hearing aid analysis circuitry in regard to claim 1

(e.g.; ¶ 3, lines 1-27);

A computer system operably connected to hearing aid analysis circuitry and a source of prerecorded speech sounds in regard to claim 1

(e.g.; ¶ 3, lines 33-37);

A control program that operates to present prerecorded speech sounds to hearing aid analysis circuitry to produce a first degraded signal routed through the filter circuitry and a second processed signal routed through the hearing aid and the filter circuitry in regard to claim 1

(e.g.; ¶ 3, lines 6-27);

A speech recognition program that compares speech recognition from a first degraded signal and speech recognition from a second processed signal to determine an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 1

(e.g.; ¶ 3, lines 6-27);

A control program operates to present prerecorded speech sounds to

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produce a control unprocessed signal that is not routed through filter circuitry or a hearing aid, the control unprocessed signal being used by a speech recognition program as a control for optimal speech recognition for the prerecorded speech sounds such that an objective indication of speech perception enhancement is expressed in relation to the control in regard to claim 2

(e.g.; ¶ 3, lines 39-48; table 1);

Filter circuitry selectively simulates a hearing loss based on the latest physiology and psychoacoustic theory in order to simulate the hearing loss suffered by a given patient in regard to claim 9

(e.g.; ¶ 2);

Interfacing a hearing aid under test with a source of prerecorded speech sounds and with hearing aid analysis circuitry including filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Presenting prerecorded speech sounds to hearing aid analysis circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Producing a first degraded signal routed through filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Producing a second processed signal routed through a hearing aid and filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

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Comparing speech recognition from a first degraded signal and speech recognition from a second processed signal using a speech recognition program in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

And determining an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 12

(e.g.; ¶ 3, lines 6-27).

Chung fails to fully teach:

An analog to digital converter in regard to claim 3;

A digital to analog converter in regard to claim 3;

A digital signal processor in regard to claim 3;

And a hearing aid analysis circuitry includes programmable attenuators in regard to claim 4.

Lindemann teaches :

An analog to digital converter in regard to claim 3

(e.g.; column 6, lines 5-9; figure 2, element 210);

A digital to analog converter in regard to claim 3

(e.g.; column 6, lines 5-9; figure 2, element 206);

A digital signal processor in regard to claim 3

(e.g.; column 6, lines 5-9; figure 2, element 204);

Hearing aid analysis circuitry includes programmable attenuators in regard to claim 4

(e.g.; ¶ 2, lines 16-20; figure 1; table 1);

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Regarding claim 3, it would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Chung of hearing aid analysis circuitry with the teaching of Lindemann of a analog to digital converter because an analog-to-digital converter, would have converted the analog audio signal to a digital audio signal.

Also regarding claim 3, it would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Chung of hearing aid analysis circuitry with the teaching of Lindemann of a digital to analog converter because an digital-to-analog converter, would have converted the digital audio signal to an analog audio signal.

Further regarding claim 3, it would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Chung of hearing aid analysis circuitry with the teaching of Lindemann of a digital signal processor because the digital signal processor would have adjusted the gain and frequency response to improve clarity and comfort as determined by the subjective response of the hearing aid wearer.

Finally regarding claim 3, it would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Chung of hearing aid analysis circuitry with the teaching of Lindemann of a hearing aid analysis circuitry includes programmable attenuators because programmable attenuators would have varied the gain and frequency shaping of test tones responsive to a control signal.

Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung in view of Revit et al. (US 2001/0040969) (Hereafter referred to as Revit).

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Chung teaches:

A source of prerecorded speech sounds in regard to claim 1
(e.g.; ¶ 3, lines 33-37);

Hearing aid analysis circuitry to receive a plurality of signals representing signals generated by speech sounds routed through different acoustic paths and filter circuitry to selectively simulate a hearing loss in regard to claim 1
(e.g.; ¶ 2, lines 9-34; figure 1);

A hearing aid under test operably interfaced with a source of prerecorded speech sounds and hearing aid analysis circuitry in regard to claim 1
(e.g.; ¶ 3, lines 1-27);

A computer system operably connected to hearing aid analysis circuitry and a source of prerecorded speech sounds in regard to claim 1
(e.g.; ¶ 3, lines 33-37);

A control program that operates to present prerecorded speech sounds to hearing aid analysis circuitry to produce a first degraded signal routed through the filter circuitry and a second processed signal routed through the hearing aid and the filter circuitry in regard to claim 1
(e.g.; ¶ 3, lines 6-27);

A speech recognition program that compares speech recognition from a

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first degraded signal and speech recognition from a second processed signal to determine an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 1
(e.g.; ¶ 3, lines 6-27);

A control program operates to present prerecorded speech sounds to produce a control unprocessed signal that is not routed through filter circuitry or a hearing aid, the control unprocessed signal being used by a speech recognition program as a control for optimal speech recognition for the prerecorded speech sounds such that an objective indication of speech perception enhancement is expressed in relation to the control in regard to claim 2

(e.g.; ¶ 3, lines 39-48; table 1);

Filter circuitry selectively simulates a hearing loss based on the latest physiology and psychoacoustic theory in order to simulate the hearing loss suffered by a given patient in regard to claim 9

(e.g.; ¶ 2);

Interfacing a hearing aid under test with a source of prerecorded speech sounds and with hearing aid analysis circuitry including filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Presenting prerecorded speech sounds to hearing aid analysis circuitry in regard to claim 12

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(e.g.; ¶ 3, lines 6-27);

Producing a first degraded signal routed through filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Producing a second processed signal routed through a hearing aid and filter circuitry in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

Comparing speech recognition from a first degraded signal and speech recognition from a second processed signal using a speech recognition program in regard to claim 12

(e.g.; ¶ 3, lines 6-27);

And determining an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 12

(e.g.; ¶ 3, lines 6-27).

Chung fails to fully teach a multiple speaker arrangement operably connected to a hearing aid analysis system and acoustically coupled to a hearing aid under test such that a control program operates to present prerecorded speech sounds through different combinations of speakers in the multiple speaker arrangement to permit evaluation of directional microphone capabilities of the hearing aid under test in regard to claims 5 and 14.

Revit teaches :

A multiple speaker arrangement operably connected to a hearing aid analysis system and acoustically coupled to a hearing aid under test such that a control program operates to present prerecorded speech sounds through different combinations of speakers in the multiple speaker

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arrangement to permit evaluation of directional microphone capabilities of the hearing aid under test in regard to claims 5 and 14 (e.g.; ¶ 0058; figure 3).

In regard to claims 5 and 14, it would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Chung of a hearing aid analysis circuitry to receive a plurality of signals with the teaching of Revit of a multiple speaker arrangement operably connected to a hearing aid analysis system and acoustically coupled to a hearing aid under test such that a control program operates to present prerecorded speech sounds through different combinations of speakers in the multiple speaker arrangement to permit evaluation of directional microphone capabilities of the hearing aid under test because multiple loudspeaker systems would have been used to present background noise from directions surrounding a listener for the purpose of testing the performance of directional hearing aids.

Conclusion

5 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas N. Washburn whose telephone number is (571) 272-2284. The examiner can normally be reached on Monday through Thursday 6:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (571) 272-2269. The

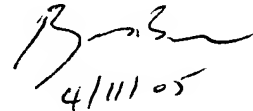
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fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BRYAN BUI
PRIMARY EXAMINER

DNW



4/11/05